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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,587	02/10/2005	Kazushi Wada	450100-04723	9868

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EXAMINER

TRAN, THANH Y

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/521,587

Applicant(s)

WADA ET AL.

Examiner

Thanh Y. Tran

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 12-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 2/10/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

Applicant's election without traverse of Group I, Species I (claims 1-11) in the reply filed on 7/14/06 is acknowledged.

#### *Claim Objections*

1. Claim 8 recites the limitation "said region" in 2-4. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "said substrate", "first said substrate" in 2 and 5. There is insufficient antecedent basis for this limitation in the claim.

#### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 6-8, and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kon et al (U.S. 4,688,098).

As to claim 1, Kon et al discloses a solid-state image pickup device in figures 1-2 including: a photosensor portion ("photo conductive film" 10) provided on the surface of a substrate (1) to convert incident light into electric charges (col. 2, lines 66-68); a transfer portion ("transferring section"/"storage section" 2/3) formed on the surface of said substrate to transfer said electric charges read out from said photosensor portion (col. 1, lines 5-12; col. 2, lines 52-55; and col. 3, lines 48-53); and an overflow barrier (11) formed within said substrate (1) to discharge unnecessary electric charges of said electric charges (col. 2, lines 5-10), wherein

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potential under said transfer portion (“transferring section”/“storage section” 2/3) is formed smaller than that formed under said photosensor portion (potential of electrode 9 formed under photosensor portion 10 is 3 V – voltage source) along the depth direction of said substrate in a range from the minimum potential position to said overflow barrier (col. 4, lines 14-50). It should be noted that: since the resistance in the transfer portion 2 is increased, this means its potential/voltage under transfer portion 2 is smaller than that formed under the photosensor portion 10 (see figures 1-2).

As to claim 2, Kon et al discloses a solid-state image pickup device in figures 1-2, wherein said transfer portion (transferring section”/“storage section” 2/3) has one or a plurality of impurity regions formed at its lower portion (see claim 6).

As to claim 3, Kon et al discloses a solid-state image pickup device in figures 1-2, wherein said photosensor portion has one or a plurality of impurity regions (regions of p type regions in 11) formed at its lower portion.

As to claim 4, Kon et al discloses a solid-state image pickup device in figures 1-2, wherein one or a plurality of second impurity regions (regions of n+, figure 2) formed under said photosensor portion (10) are formed with depths different from that of said impurity region (region 11).

As to claim 6, Kon et al discloses a solid-state image pickup device in figures 1-2, wherein said impurity region is a P type impurity region (and “p type” regions in 11) (col. 5, lines 21-22) and said second impurity region is an N type impurity region (“n+” regions in 2/3).

As to claim 7, Kon et al discloses a solid-state image pickup device in figures 1-2, wherein said potential in said overflow barrier (11) under said transfer portion (2/3) is smaller

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than that in said overflow barrier under said photosensor portion ("photo conductive film" 10) (potential of electrode 9 formed under photosensor portion 10 is 3 V – voltage source, and the potential corresponds to transfer portion 2/3 is smaller than that in said overflow barrier under said photosensor portion 10 because the resistance in the transfer portion 2 is increased than that in photosensor portion 10).

As to claim 8, Kon et al discloses a solid-state image pickup device in figures 1-2, wherein said region (can be region 9 or region 2/3) under said photosensor portion (10) of said overflow barrier (11) has a concentration lower than that of said region (11) in said overflow barrier.

As to claim 10, Kon et al discloses a solid-state image pickup device in figures 1-2, wherein said substrate is composed of a first conductivity type first substrate (n type of region 2) and a first conductivity type substrate formed on an upper layer of said first substrate (1) and which is higher in resistance (having resistance 2) than said first conductivity type substrate.

As to claim 11, Kon et al discloses a solid-state image pickup device in figures 1-2, wherein said first conductivity type (n type of region 2) is N type and said second conductivity type is P type (p type of substrate 1) (see figure 2).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kon et al (U.S. 4,688,098).

As to claim 9, Kon et al does not disclose overflow barrier is formed at the position deeper than 3  $\mu\text{m}$  from the surface of the substrate. However, *forming an overflow barrier at the position deeper than 3  $\mu\text{m}$  from the surface of the substrate* would have been obvious to an ordinary artisan practicing the invention because, absent evidence of disclosure of criticality for the range giving unexpected results, it is not inventive to discover optimal or workable ranges by routine experimentation. In re Aller, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955). Furthermore, the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising therefrom. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. See In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

#### ***Allowable Subject Matter***

6. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakashiba (U.S. 6,573,937), Suzuki et al (U.S. 5,656,928), Harada (U.S. 2003/0059974), Nakamura et al (U.S. 6,690,423), Nagata et al (U.S. 6,642,541), Mori et al (U.S. 7,102,680) disclose relevant prior art to the present invention.

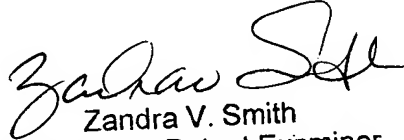
**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Y. Tran whose telephone number is (571) 272-2110. The examiner can normally be reached on M-F (9-6:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on (571) 272-2429. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TYT

  
Zandra V. Smith  
Supervisory Patent Examiner  
11 Dec. 2006